REMARKS/ARGUMENTS

Claims 1-31 are pending. Claims 1, 10-14, 19 and 25-26 are amended. Claims 28-31 are added. Support for the amended claims can be found, for example, at FIG. 1 and page 4, paragraph 15 to page 5, paragraphs 22. No new matter has been introduced.

Claims 10-11, 13-14, 19 and 25-26 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have accordingly amended the claims and submit that claims 10-11, 13-14, 19 and 25-26 as amended are definite. Thus, Applicants respectfully request withdrawal of the rejection.

Claims 1-27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-29 of Poss (U.S. 6,960,907) in view of Knight et al. (U.S. 6,639,373). In view of the Terminal Disclaimer filed herewith, Applicants respectfully request withdrawal of the double patenting rejection.

Claims 1-3 and 7-15

Claims 1-3 and 7-15 are rejected under 35 U.S.C. § 103(a) as unpatentable over Pulkin et al. (U.S. 6,573,694) in view of Knight et al. Applicants respectfully submit that independent claim 1 as amended is novel and patentable over the cited references because, for instance, they do not teach or suggest an electronic device "wherein a bandwidth at said circuit control node changes to track a bandwidth at said circuit output node as said load changes." Applicants submit that independent claim 12 is likewise novel and patentable over the cited references because, for instance, they do not teach or suggest a hard disk controller circuit "wherein a bandwidth at said first circuit node changes to track a bandwidth at said second circuit node as said load changes." This is described, for example, at paragraph [19] of the present application.

Pulkin et al. merely discloses a buffer comprising two PMOS transistors, used for an NPN output driver to provide low output impedance and low dropout voltage. (Col. 1, line 66 to Col. 2, line 6). A low impedance is provided by the localized feedback gain loop. (Col. 2, lines 10-16). Moreover, the use of two transistors allows the buffer to drive the base current of the NPN transistor with lower dropout characteristics. (Col. 2, lines 17-20). Pulkin et al. also

teaches that the configuration of its invention provides for lower output impedance and lower dropout voltage than a standard single source follower, at the cost of only two transistors and one current source. (Col. 2, lines 1-3, lines 51-55).

However, there is no mention in Pulkin et al. whatsoever of the problem of instability due to the open loop gain that occurs when at least two poles are below the unity gain bandwidth (UGB) and no zero compensation method is provided, as addressed in the present application. (See paragraph [2] of the application). The present application appreciates that there are many places where secondary poles can potentially exist, especially at the base node V_3. (Paragraph [6]). According to embodiments of the invention, a higher bandwidth at base node V_3 enables the placement of a pole beyond the UGB and thus ensures stability of the circuit. (Paragraph [15]). Moreover, a higher bandwidth at V_3 is provided as the pole at output node V_{out} increases during higher current loads, and the tracking of V_3 and V_{out} in bandwidth while the load changes ensures stability of the circuit. (Paragraph [19]). There is no teaching or suggestion in Pulkin et al. of these features.

Knight et al. is only cited for disclosing a hard disk device controller coupled to the regulating circuit. However, Knight et al. fails to disclose a circuit "wherein a bandwidth at said circuit control node changes to track a bandwidth at said circuit output node as said load changes" as recited in claim 1, or "wherein a bandwidth at said first circuit node changes to track a bandwidth at said second circuit node as said load changes," as recited in claim 12.

In view of the foregoing, Applicants submit that independent claims 1 and 12, and claims 2-3, 7-11 and 13-15 depending therefrom, are novel and patentable over the cited art.

Claim 4

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pulkin et al., in view of Knight et al., and further in view of Hsiao et al. (U.S. 3,984,780).

Claim 4 depends from claim 1, and is submitted to be patentable as being directed to additional features of the invention as well as being dependent from allowable claim 1. As noted above, Pulkin et al. and Knight et al. fail to disclose all the limitations of claim 1. Hsiao et al. does not cure the deficiencies of Pulkin et al. and Knight et al. Hsiao et al. is only cited for

disclosing a current mirror circuit coupled between the amplifier output and the source follower. However, Hsiao et al. fails to disclose an electronic device "wherein a bandwidth at said circuit control node changes to track a bandwidth at said circuit output node as said load changes" as recited in claim 1, from which claim 4 depends.

For at least the forgoing reasons, claim 4 is novel and patentable.

Claims 5-6 and 16-18

Claims 5-6 and 16-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pulkin et al., in view of Knight et al., and Hsiao et al., and further in view of Miranda et al. (U.S. 5,631,598).

Claims 5-6 depend from claim 1, and are patentable for at least the same reasons that claim 1 is patentable. As noted above, Pulkin et al., Knight et al., and Hsiao et al. fail to disclose all the limitations of independent claim 1, from which claim 5-6 depend. Miranda fails to cure the deficiencies of the above references. Miranda is only additionally cited for disclosing a resistor. However, Miranda fails to disclose an electronic device "wherein a bandwidth at said circuit control node changes to track a bandwidth at said circuit output node as said load changes," as recited in claim 1, from which claims 5-6 depend.

Claims 16-18 depend from claim 12, and are patentable for at least the same reasons that claim 12 is patentable. As noted above, Pulkin et al. and Knight et al. fail to disclose all the limitations of independent claim 12. Hsiao et al. is only cited for disclosing a current mirror circuit coupled between the amplifier output and the source follower and does not cure the deficiencies of Pulkin et al. and Knight et al. Miranda also fails to disclose a hard disk controller circuit "wherein a bandwidth at said first circuit node changes to track a bandwidth at said second circuit node as said load changes," as recited in claim 12, from which claims 16-18 depend.

For at least the forgoing reasons, claims 5-6 and 16-18 are novel and patentable.

Claims 19-20 and 25-26

Claims 19-20 and 25-26 are rejected under 35 U.S.C. § 103(a) as unpatentable over Pulkin et al., in view of Knight et al., and further in view of Xi (U.S. 6,246,221).

Applicants submit that independent claims 19 and 25 are novel and patentable over the cited references because, for example, they do not teach that "a bandwidth at said source follower node changes to track said bandwidth at said output node as said load changes."

As noted above, Pulkin et al. and Knight et al. fail to disclose the above limitation. Xi is only additionally cited for teaching an output amplifier stage having a pole at a frequency greater than the unity gain frequency of the circuit. However, Xi only teaches the use of a modified Miller capacitor circuit that includes a variable gain single stage amplifier so that a differential input has one input tied to a capacitor, while the other is at a dc voltage referenced to ground. (Col. 3, lines 20-34). Xi teaches that a higher frequency pole is achieved at the filter capacitor by partitioning the low drop-out architecture into a two stage amplifier and using the Miller capacitance for compensation. (Col. 4, lines 11-17). However, Xi does not teach or suggest a circuit "wherein a bandwidth at said source follower node changes to track said bandwidth at said output node as said load changes" as recited in claims 19 and 25.

For at least the forgoing reasons, claims 19 and 25, and 20 and 26 dependent therefrom, are novel and patentable.

Claims 21-24 and 27

Claims 21-24 and 27 are rejected under 35 U.S.C. § 103(a) as unpatentable over Pulkin et al. in view of Knight et al., and Xi, and further in view of Miranda et al.

Claims 21-24 depend from claim 19, and are patentable for at least the same reasons that claim 19 is patentable. Claim 27 depends from claim 25, and is patentable for at least the same reasons that claim 25 is patentable. As noted above, Pulkin et al., Knight et al. and Xi fail to disclose all the limitations of independent claims 19 and 25. Miranda is only additionally cited for disclosing a resistor and fails to cure the deficiencies of the above references. Miranda fails to disclose that "a bandwidth at said source follower node changes to track the bandwidth at said output node as said load changes," as recited in claims 19 and 25, from which claims 21-24 and 27 depend.

For at least the forgoing reasons, claims 21-24 and 27 are novel and patentable.

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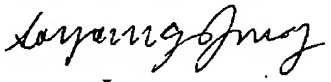
CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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